and operable in accordance with each of the following, assessed independently:

(a) *Operable without vision*. Provide at least one mode that does not require user vision.

(b) *Operable with low vision and limited or no hearing*. Provide at least one mode that permits operation by users with visual acuity between 20/70 and 20/200, without relying on audio output.

(c) *Operable with little or no color perception*. Provide at least one mode that does not require user color perception.

(d) *Operable without hearing*. Provide at least one mode that does not require user auditory perception.

(e) *Operable with limited manual dexterity*. Provide at least one mode that does not require user fine motor control or simultaneous actions.

(f) *Operable with limited reach and strength*. Provide at least one mode that is operable with user limited reach and strength.

(g) *Operable without time-dependent controls*. Provide at least one mode that does not require a response time. Alternatively, a response time may be required if it can be by-passed or adjusted by the user over a wide range.

(h) *Operable without speech*. Provide at least one mode that does not require user speech.

(i) *Operable with limited cognitive skills*. Provide at least one mode that minimizes the cognitive, memory, language, and learning skills required of the user.

§ 1193.43 Output, display, and control functions.

All information necessary to operate and use the product, including but not limited to, text, static or dynamic images, icons, labels, sounds, or incidental operating cues, shall comply with each of the following, assessed independently:

(a) *Availability of visual information*. Provide visual information through at least one mode in auditory form.

(b) *Availability of visual information for low vision users*. Provide visual information through at least one mode to users with visual acuity between 20/70 and 20/200 without relying on audio.

(c) *Access to moving text*. Provide moving text in at least one static presentation mode at the option of the user.

(d) *Availability of auditory information*. Provide auditory information through at least one mode in visual form and, where appropriate, in tactile form.

(e) *Availability of auditory information for people who are hard of hearing*. Provide audio or acoustic information, including any auditory feedback tones that are important for the use of the product, through at least one mode in enhanced auditory fashion (i.e., increased amplification, increased signal-to-noise ratio, or combination). For transmitted voice signals, provide a gain adjustable up to a minimum of 20 dB. For incremental volume control, provide at least one intermediate step of 12 dB of gain.

(f) *Prevention of visually-induced seizures*. Visual displays and indicators shall minimize visual flicker that might induce seizures in people with photosensitive epilepsy.

(g) *Availability of audio cutoff*. Where a product delivers audio output through an external speaker, provide an industry standard connector for headphones or personal listening devices (e.g., phone-like handset or earcup) which cuts off the speaker(s) when used.

(h) *Non-interference with hearing technologies*. Reduce interference to hearing technologies (including hearing aids, cochlear implants, and assistive listening devices) to the lowest possible level that allows a user to utilize the product.

(i) *Hearing aid coupling*. Where a product delivers output by an audio transducer which is normally held up to the ear, provide a means for effective wireless coupling to hearing aids.

Subpart D—Requirements for Compatibility With Peripheral Devices and Specialized Customer Premises Equipment

§ 1193.51 Compatibility.

When required by subpart B of this part, telecommunications equipment and customer premises equipment shall be compatible with peripheral devices and specialized customer premises

equipment commonly used by individuals with disabilities to achieve accessibility, and shall comply with the following provisions, as applicable:

(a) *External electronic access to all information and control mechanisms.* Information needed for the operation of products (including output, alerts, icons, on-line help, and documentation) shall be available in a standard electronic text format on a cross-industry standard port and all input to and control of a product shall allow for real time operation by electronic text input into a cross-industry standard external port and in cross-industry standard format. The cross-industry standard port shall not require manipulation of a connector by the user.

(b) *Connection point for external audio processing devices.* Products providing auditory output shall provide the auditory signal at a standard signal level through an industry standard connector.

(c) *Compatibility of controls with prosthetics.* Touchscreen and touch-operated controls shall be operable without requiring body contact or close body proximity.

(d) *TTY connectability.* Products which provide a function allowing voice communication and which do not themselves provide a TTY functionality shall provide a standard non-acoustic connection point for TTYs. It shall also be possible for the user to easily turn any microphone on and off to allow the user to intermix speech with TTY use.

(e) *TTY signal compatibility.* Products, including those providing voice communication functionality, shall support use of all cross-manufacturer non-proprietary standard signals used by TTYs.

APPENDIX TO PART 1193—ADVISORY GUIDANCE

INTRODUCTION

1. This appendix provides examples of strategies and notes to assist in understanding the guidelines and are a source of ideas for alternate strategies for achieving accessibility. These strategies and notes are not mandatory. A manufacturer is not required to incorporate all of these examples or any specific example. Manufacturers are free to use these or other strategies in addressing the guidelines. The examples listed here are not comprehensive, nor does adopting or incorporating them guarantee an accessible product. They are meant to provide a useful starting point for evaluating the accessibility of a product or conceptual design and are not intended to inhibit innovation. For a more complete list of all of the published strategies to date, as well as for further information and links to on-going discussions, the reader is referred to the National Institute on Disability and Rehabilitation Research's Rehabilitation Engineering Center on Access to Telecommunications System's strategies Web site (*http://trace.wisc.edu/world/telecomm/*).

2. This appendix is organized to correspond to the sections and paragraphs of the guidelines in this part to which the explanatory material relates. This appendix does not contain explanatory material for every section and paragraph of the guidelines in this part.

SUBPART A—GENERAL

Section 1193.3 Definitions

Readily Achievable

1. Section 255 defines ''readily achievable'' as having the same meaning as in the Americans with Disabilities Act (ADA). However, the ADA applies the term to the removal of barriers in existing public accommodations. Not all of the factors cited in the ADA or the Department of Justice (DOJ) implementing regulations (July 26, 1991) are easy to translate to the telecommunications context where the term applies to telecommunications equipment and customer premises equipment which is designed, developed and fabricated after February 8, 1996, the effective date of the Telecommunications Act of 1996.

2. It may not be readily achievable to make every product accessible or compatible. Depending on the design, technology, or several other factors, it may be determined that providing accessibility to all products in a product line is not readily achievable. The guidelines do not require accessibility or compatibility when that determination has been made, and it is up to the manufacturer to make it. However, the assessment as to whether it is or is not readily achievable cannot be bypassed simply because another product is already accessible. For this purpose, two products are considered to be different if they have different functions or features. Products which differ only cosmetically, where such differences do not affect functionality, are not considered separate products.

3. Below is a list of factors provided as interim guidance to manufacturers to assist them in making readily achievable assessments. The factors are derived from the ADA itself and the DOJ regulations and are presented in the order in which they appear in